Dr. Liepa commented that he would be in a better position to make a report at the next meeting since he is just starting to collect various articles of interest. He is using the *Bio Electro Magnetic Journals* as his main source of information since it is one of the best journals in which to find the type of articles this committee is interested in studying.

The pros and cons were discussed of possibly obtaining technical information from other sources to study, i.e., CD Rom software.

Dr. Rowe commented that since she is not a big advocate of lots of meetings and discussions if a consensus could be reached on the point that there may be some health affects at a thermal level but we are not sure and we are not sure what levels are safe.

Discussion followed Dr. Rowe's comments. Both Mr. Lord and Mr. Sundquist disagreed with Dr. Rowe. Dr. Liboff interjected that there is some data that indicates that certain frequencies somehow affect tissue that is deleterious and these levels are lower than anyone would expect. He felt it was fair to agree with Dr. Rowe that there is data on non-thermal levels which indicate a problem. On the other hand, the right answer in contesting would be to say that in the past when different people have done EM research there is no question that the results are not always the same. Mr. Bills felt there is some affect but at what level and how do we deal with it? Also, there is every indication that the federal government is going to become involved, possibly in the next two years, with the emissions segment of this situation which will overrule local ordinances. In the meantime, what do we do? Mr. Vosko felt if the committee could agree that it believes there may be some health risks here then the group can proceed to determine what is needed in the community to accommodate it.

Dr. Rowe suggested that more accurate measurements of emissions should be performed first in different areas by the Monitoring Sub-Committee to determine what are the real risk levels. The group then needs to examine what other communities have done with regard to this situation in relation to the City's zoning regulations to determine what could be applied here in this community and what recommendations could be made to Council. She felt the towers should be located away from children and twenty-four hour a day exposure.

Mr. Sundquist indicated that restricting towers as suggested by Dr. Rowe would eliminate all towers and he did not feel this would be possible.

Ms. Goldfarb mentioned that West Bloomfield has indicated to her that they have enough towers (3) and have no regulations. Any further requests for towers will be handled when the request is presented to them.

Dr. Liboff felt some reasonable and practical solution needs to be found to this matter since the literature will continue to be vague and as non-specific as it has in the past regarding the affects of radiation. Although he was not sure of the legalities involved, he proposed as one solution

that the City have the option to re-evaluate any tower site after 2 or 3 years based upon the findings of new developments in research with the idea if the site is determined to be a health risk that it can be closed down.

Mr. Brock indicated that Dr. Liboff's suggestion was a possibility that might be considered since the City does have an ad hoc committee on toxic and hazardous materials which is reconvened periodically.

Some general discussion followed Dr. Liboff's suggestion.

Discussion was then held on what would be considered a reasonable standard to use to determine the level at which electromagnetic fields become a health and safety risk. It was brought out in discussion that if for instance the Russian standard was used, which was felt to be low and most restrictive, that to be on the safe side a still lower standard should be used for the safety of children.

Dr. Rowe reiterated her earlier comments relative to obtaining some more accurate readings by the Monitoring Sub-Committee in addition to the measurements being taken on September 19th. She would also like to see some random blind readings taken. She felt if the calculations show the emissions should be below a certain level then this is what needs to be discussed so the committee knows what should be recommended to the City Council.

> MOTION by Rowe, support by Bruckner, that the Monitoring Sub-Committee not only should take preliminary readings on September 19, 1995, but also set up a system for doing an array of monitoring to which the cellular phone companies will be blind following standard scientific methods and report back to this committee with the results of the levels being recorded.

Mr. Dilley pointed out that blind readings might not be possible since he and Mr. Lord are both part of the Monitoring Sub-Committee.

> Motion carried unanimously.

Dr. Rowe stated that it should be noted for the record that the Technical Sub-Committee in its review of the scientific data given to them find there may or may not be some adverse health affects from non-thermal radiation and there is on-going monitoring on the state of the research.

After the pros and cons of Dr. Rowe's statement were debated, it was revised as follows: " That based on the reports in the research literature reviewed by the Technical Sub-Committee given to them it seems there are biological affects from non-thermal microwave radiation which may or may not cause adverse health affects and, therefore, more research is needed."

The Technical Sub-Committee indicated by a poll of its members present that Dr. Rowe's statement as revised was acceptable to them. However, Mr. Sundquist, disagreed because the sub-committee has had a total of zero meetings and the 4 or 5 articles that were given to them obviously had only one slant to them. Therefore, based on no meetings, he believed it was premature to make this statement.

DISCUSSION OF OTHER MUNICIPAL ORDINANCES/REGULATIONS:

MOTION by Bruckner, support by Vosko, to table the discussion of other municipal ordinances/regulations.

Motion carried unanimously.

DISCUSSION OF POSSIBLE REGULATIONS AND SITING REQUIREMENTS:

MOTION by Bruckner, support by Vosko, to table the discussion of possible regulations and siting requirements.

Motion carried unanimously.

UPDATE ON FEDERAL TELECOMMUNICATIONS BILL:

Mr. Brock commented that he and Jan Goldfarb have discussed this issue at great length. He explained that the local governments have a great deal of concern about this Bill and not only because of the issue of cellular towers but for many other reasons that involve the municipalities. This is a very large complicated Bill that has been referred to a Conferee Committee since both the House and Senate have passed on their version of it. He noted that the City Council is on record as opposing the Telecommunications Bill in its current form.

Some discussion followed on the Bill as it related to the cellular towers.

Mr. Brock will keep the group informed on the status of the Bill after it goes to the Conferee Committee.

Ms. VanCreveld asked if there was any information that she could obtain as to who to call or write regarding this Bill that could be distributed at her subdivision's picnic on September 10th and at the Council of Homeowners general membership meeting on September 12th.

Mr. Brock indicated that he would get this information to the group early next week.

CONSIDERATION OF COMMITTEE MISSION STATEMENT:

Mr. Brock asked if the committee wanted to accept the mission statement as it appears on page 4 of the June 22nd meeting minutes as its mission statement. This is the original language from the resolution approved by the City Council with the addition of Mr. Vosko's amendments.

> MOTION by Rowe, support by Vosko, that the following statement be accepted by the Ad Hoc Cellular Tower Study Committee as its working mission statement:
>
> "A Cellular Tower and Antennae Study Committee is hereby established for the purpose of determining levels of electromagnetic fields generated by existing cellular facilities within the City, evaluating the scientific and technical studies regarding the health and safety impacts of these fields and formulating recommendations to City Council regarding the future regulation of cellular towers and antennae including drafting zoning or other ordinance amendments which will be consistent with the above and provide regulations for the creation, location, erection, maintenance, monitoring and standards for reporting and review of use."
>
> Motion carried unanimously.

OTHER BUSINESS:

There was no other business to come before the committee.

SELECTION OF NEXT MEETING DATE:

Dr. Rowe asked if the Monitoring Sub-Committee could give the group a copy of the proposed procedure for conducting the monitoring tests.

Mr. Lord indicated that he would submit this information to the committee. He also asked them to review the document in the CellularOne packet distributed earlier this evening relative to the site information spread sheet and attachments.

Dr. Rowe suggested the group review the procedure for the monitoring before any testing is started so any problems can be resolved with the Monitoring Sub-Committee. It was suggested that the chair, Mr. Lord, be contacted directly with any questions or concerns.

Mr. Sundquist commented that he would anticipate, once these readings are completed and everyone is comfortable with them, that Ameritech will be bring in expert(s) to give the group some additional information and opinions on their review of studies that have been made. He believed this input would be valuable to the committee. At this time, however. he was not sure who the expert(s) might be that would speak to the group.

Dr. Rowe believed the group should have the right to review the experts backgrounds and any literature before consenting to any presentation by them. Mr. Sundquist indicated he was agreeable to this suggestion and felt it was only fair that the group have complete information before any speaker is presented to them.

Some discussion was held on the possibility of getting Dr. Steven Cleary to speak to the group. Mr. Brock explained that Dr. Cleary indicated to him that he would be unable to speak to the group because of his busy schedule. However, he would be happy to supply the group with any information they might want. It was suggested that Ms. Goldfarb contact him to see if she could get him to speak before the group.

Mr. Brock noted that it was his understanding that if there were any recognized experts in the field who wanted to share something with the committee this would be permitted.

Dr. Liboff raised the question of whether the individual would be a paid consultant, and, of so, was any offer made to Dr. Cleary? Mr. Brock responded that this issue was never raised since his busy schedule would not permit his attendance.

Discussion focused on the feasibility of having other experts address the group and whether the speakers would be compensated for their time. Dr. Rowe expressed concern over having a redundancy of speakers and meetings, particularly since this group has its own technical advisors. She would prefer to concentrate on the goals of the group. Other members of the group indicated that they would be agreeable to hearing different experts on the subject.

Discussion was held on the next meeting date. A tentative date of October 19th was selected for the next meeting.

Discussion ensued on inviting Nextel Communications to participate in the committee and as a member of the Monitoring Sub-Committee since this company might become a cellular provider in the City. Dr. Rowe suggested they be invited as a non-voting member since she was concerned about having a majority vote from industry.

Dr. Rowe inquired if Kyle Dilley could provide the group with an update on what will be happening to this technology in the next couple of years since it appears some major transformations are going to occur. Her concern was that the committee could make recommendations that do not take into account the technology advances that will be developing in the near future simply because they are not aware of them. She suggested placing this issue on the agenda for the next meeting.

Dr. Liboff also wanted to know where this industry was going to be in the next 10 to 20 years and felt this would be an interesting presentation for the next meeting.

Mr. Dilley commented on a service which the U.S. government will be selling that will involve billion of dollars of income to the federal government that will utilize radio and a lot of towers. This service will create problems with pre-emption with local governments since the federal government will be giving the operators the right to build this service within a City.

ADJOURNMENT:

The meeting was adjourned at 9:40 p.m.

Respectfully submitted,
Steve Brock, Assistant City Manager

mg/ct083195

APPROVED

MINUTES
CITY OF FARMINGTON HILLS
AD HOC CELLULAR TOWER STUDY COMMITTEE
WEDNESDAY, NOVEMBER 8, 1995

The meeting of the Ad Hoc Cellular Tower Study Committee was called to order by Assistant City Manager Brock at 7:30 p.m.

PRESENT:

Residents:	Ken Bills, Robert Bruckner, Jan Goldfarb, Sandra McKelly, Dr. Debra Rowe, Gladys Sanford, Shari Schwartz and Alan Vosko.
Cellular Companies:	Amy Accettura, Kyle Dilley, Mike Lord and Richard Sundquist.
Scientific Community:	Dr. Abrham Liboff and Dr. Valdis Liepa.
City Representatives:	Director Dale Countegan and Assistant City Manager Brock.
Absent:	Peter Baldwin, Kathleen McAdaragh-Hain, Joe Rebh, and Marcia VanCreveld.

APPROVAL OF MINUTES:

MOTION by Bruckner, support by Sundquist, that the meeting minutes of August 31, 1995 be approved as published.

Motion carried unanimously.

PRESENTATION BY NEXTEL COMMUNICATIONS ON ENHANCED SPECIALIZED MOBILE RADIO (ESMR). (TABLED FROM AUGUST 31, 1995 MEETING):

Mr. Brock mentioned that the representatives from Nextel Communications are here tonight to update their report to the committee regarding their request to co-locate on the City's tower at the DPW site off Halsted Road. This issue was tabled from the August 31st meeting.

One of Nextel's representatives explained they are again before this committee to request their endorsement that would allow them to go forward with its proposal with the City to co-locate on the DPW tower. He pointed out that the DPW site is clearly outside the boundary of the moratorium and currently both Ameritech and Cellular One lease space on it. They were here tonight to answer any further questions of concern from the committee.

Discussion followed to clarify the location of the tower in relation to the nearest residential area.

Discussion was held on the cumulative emissions this tower would be emitting with the addition of Nextel since this was one of the committee's main concerns. The Nextel representative indicated that they have never actually measured the emissions but they normally put out the basic standard cellular 30 watts. He also pointed out that by eliminating four high power (120 watt) analog transmitters in Southfield and at least two (90 watt) at Novi and installing the one digital tower at the DPW site the net effect of emissions will be greatly decreased.

Dr. Rowe expressed her concern about making a statement regarding this request until the committee has decided on some zoning regulations or plan.

Mr. Brock commented that Nextel could make their appeal directly to the City Council since the committee's approval was not a requisite but the City Manager felt it would be appropriate for them to present their plans and seek input from the group. The City Council actually will be approving a lease arrangement to co-locate on the tower if Nextel decides to proceed with their proposal. He also verified that the DPW tower site is out of the range of the moratorium.

Further discussion ensued.

Mr. Vosko, personally, did not have a problem with Nextel proceeding with its proposal since the committee has addressed the matter and they are out of the area of the moratorium. He indicated the City should decide on what direction they want to take with Nextel. Also, whatever the committee eventually proposes will cover the entire City anyway. He recommended advising the City Council that the committee does not choose to take a position on this matter since it is out of their province in relation to what the committee is addressing.

Mr. Sundquist agreed with Mr. Vosko. He added that probably any zoning ordinance the committee decides on probably will not affect the area of the DPW site. In fact, he believed this is the best location for a tower from a zoning and planning standpoint.

MOTION by Vosko, support by Sundquist, that the Cellular Tower Study Committee hereby acknowledges the presentation by Nextel Communications regarding its proposal to co-locate on the Farmington Hills DPW site off Halsted Road; and

FURTHER, the committee acknowledges that the DPW site does not come under the context of the moratorium as defined.

FURTHER, this committee does not choose to take a position on the Nextel Communications proposal because it is out of the area which they are currently studying and hereby recommends Nextel Communication take its proposal directly to the City Council for their determination.

Discussion followed. The pros and cons were deliberated in relation to the field strength of this tower, the moratorium, and the possible impact of future regulations and/or an ordinance on the Nextel proposal. Some concern was raised about still having insufficient data in relation to the Nextel proposal on which to base a decision.

The committee agreed to postpone action on the motion and the subject agenda item until later in the meeting in order to verify some statistical information.

REPORT BY TECHNICAL SUB-COMMITTEE:

Dr. Rowe reported that the Techinical Sub-Committee had a good discussion and some conclusions were reached. She thought they might have further comments to make after Dr. Polson's presentation.

Mr. Brock distributed Dr. Stephen Cleary's statement which he made via a telephone conversation on November 6, 1995. His statement read:

> "Limited information regarding chronic exposure effects of low intensity microwave radiation introduces uncertainty about potential health effects. Until sufficient information is available to determine threshold intensity for deleterious effects, exposure of human should be minimized. Exposure levels from all sources should be accurately estimated prior to facility construction and measured after the facility is put into operation. Exposure intensity should be measured at appropriate locations in the vicinity of radiant microwave and radio frequency sources."

REPORT BY MONITORING SUB-COMMITTEE:

Mr. Lord reported that the Monitoring Sub-Committee met twice since this committee's last meeting on August 31st. He distributed a copy of their report entitled Measurements of Electromagnetic Energy Levels In Close Proximity To Cellular Telephone Towers. He briefly outlined the measurement procedure which was used in order to get the best readings. The report included the measurement data from the site at the Sisters of Mercy property which took place on September 8th and was used for verification of the measurement procedures for the four test location sites taken on September 19th. The test location sites included: Cellular One Site #37, located on the southwest corner of 12 Mile and Farmington Roads; the Ameritech Site #55, located near the MetroBank at the intersection of 12 Mile and Farmington Roads; Warner Middle School, located at 14 Mile and Orchard Lake Roads; and near a private residence in close proximity to a multiple-use facility located in the City of West Bloomfield and owned by that city. This tower has both Cellular One and Ameritech antennas, as well as transmitters serving the public safety needs and police department of that city.

He explained that the measurements for each site location are divided into separate sections. The individual sections include a map detailing the location of the site and where the measurements were taken; a photographs of the site location; a data sheet that shows the actual power levels measured and the nearest cell site parameters; a graphical linear chart showing the power densities using the Russian standard as a reference point; a graphical logarithmic scale chart showing the power densities data relative to radio transmitters, the Russian standard and the ANSI/IEEE standard; graphs that showed the graphic representation of the data that was generated at the site; and a table showing the data generated at the site relative to the highest emissions measured.

Lengthy discussion followed to clarify various aspects of the report relative to the antenna heights, the actual power readings taken, the distances at which the measurements were taken, the distances to the nearest residential and school areas as well as the techniques used in taking the readings.

Mr. Lord questioned whether it was necessary to take further readings with the data that has been presented in this report. He suggested reviewing the last section of the report which summarized the maximum measured values for each of the five test locations and then the committee could make its determination.

Dr. Rowe mentioned that at the last meeting the committee voted to conduct some blind readings. She believed that blind readings were essential to increase the validity of the measurements reflected in the report.

Mr. Lord replied that this was discussed but blind readings are not very feasible because someone has to operate the equipment. He pointed out that the actual measurements were taken by Dr. Liepa. He also mentioned that at the last meeting the committee members were invited, if they so desired, to come out and view the way the measurements were being taken but no one showed up. He added that a lot of work and resources have been put into this report.

Mr. Brock inquired if there was a way by which only Dr. Liepa, or however many independent persons the residents choose, to conduct some blind studies.

Dr. Liepa responded that he would need a directive as to the particular place and time to go so he could make the required measurements. He also briefly commented on how an independent study could be conducted.

Dr. Liboff felt it would be to everyone's best interest to try and conduct some blind readings to reassure the residents. He noted that it was an incredible thing but people around the country who have these innate fears concerning electromagnetic radiation would like to have measurements taken in the way Dr. Rowe has suggested. He related an incident in Minnesota to illustrate his point.

Further discussion followed on the question of whether to conduct some blind readings.

Mr. Brock inquired as to the time and place these measurements could be taken by Dr. Liepa. He mentioned that he would be present for the reading and felt it was essential that Dr. Rowe likewise be present.

Dr. Rowe felt there was a misconception on what was being discussed here. She stated it was not a question of whether the measurements taken are accurate or not. She had no question that the report was accurate and that the methodology is acceptable. Her question is how do you do a good study? In her opinion, one does multiple measures for reliability and doing a single blind, or hopefully a double blind, study increases the validity, and reliability and validity are two basic statistical concepts to make sure your measures are good. She indicated this is done with all researchers all the time.

Mr. Brock stated, if it is the consensus of the committee, he would meet with Dr. Liepa and any residents who would like to join them in establishing a methodology by which, short term, within several weeks some double blind testing can be done. The testing need not be elaborate and Dr. Liepa can determine the parameters but he would not be given the locations and times to make sure the readings will be valid.

The committee agreed to Mr. Brock's proposal. Dr. Peter Polson pointed out why it would be impossible to do a double blind study. The committee concurred, and the study conducted would be single blind testings.

Mr. Vosko raised the issue of whether the equipment used to do these studies was available commercially so the city, for instance, could conduct random studies in the future on the towers.

Mr. Lord indicated that the equipment can be rented but the cost to purchase it would be between $35,000 and $40,000.

Discussion followed on the feasibility of having this type of equipment available for the City's use in the future. Dr. Liepa suggested using an independent company to conduct future measurements at a cost of around $100 per site measured which would be about 10 measurements taken at the site. He indicated that they probably could do this for the City.

Dr. Liboff noted that two issues are being discussed here. One, being to do an effective blind study to reinforce the values in the report. The other issue of periodic measurements over a period of time, introduced by Mr. Vosko, is a longer term consideration and, he believed, should be discussed separately.

Mr. Vosko interjected that he realized there were two issues but wanted to expand on the concept of how to continue monitoring these towers and defray the costs since the City cannot keep imposing upon Dr. Liepa's voluntary cooperation.

Mr. Lord concluded his comments on the sub-committee's report, summarizing the results of the study which indicated that the energy levels surrounding cellular towers within the City of Farmington Hills were significantly below the ANSI/IEEE standard of 587 $\mu W/cm^2$. The highest level encountered was at Cellular One Site #37. The table on page 40 summarized the maximum measured values for each of the five test locations as well as the percentages for the ANSI/IEEE and Russian standards. These power densities were graphically shown on a linear scale chart on page 41.

The committee commended the Monitoring Sub-Committee on the excellent report.

Mr. Dilley, in response to Dr. Liboff, briefly reviewed the summary on page C-2 in the report which detailed Ameritech's cell sites in Farmington Hills and West Bloomfield.

Some general discussion followed for clarification with respect to the summary.

Dr. Liepa questioned just what is the committee trying to discover. Measurements were taken where one indicated it was 20% of the Russian standard and then there is talk about doing blind tests. Are we trying to exceed the Russian standard or are we going to test the maximum hottest spots in the City? If the direction is to be so low, like 1% of the Russian standard, why spend the time. He believed the committee should select some type of guideline.

Dr. Rowe explained that the Russian standard was chosen since it was the lowest standard that could be found and used for the basis of comparison. However, she is now unclear about the values after reviewing the report and the coments of Dr. Liboff about the state of the research as reflected in the August 31st meeting minutes, and the statement from Dr. Cleary.

Dr. Liepa pointed out that Dr. Cleary's statement just talks about something that you should be aware of but does not give any numbers.

Dr. Polson addressed the Russian standard. He explained that what is actually being discussed is the soviet standard that was promulgated in 1984. As he understands it, and it is not clear to him, but there is no Russian standard at the present time. In fact, what has happened is some Russian business people visited AT&T Bell labs about 2 or 3 months ago and in the discussions the impression was given that the Russian standard will be raised from the old cellular standard to a level of 500 $\mu/W/cm^2$. Although he has not been able to verify this information, two independent sources have indicated that the Russian standard will be raised.

Dr. Liboff commented that he has spoken to some Russians while visiting there and they are very much tuned into the concept of there being very strong non-thermal effects. If you recall, the basis for the difference between the American and Russian standards was that the people who headed up the ANSI C-95 Committee were basically looking at the thermal levels and then taking the power of 10 below that just for safety sake. The Russians were working from another standpoint of looking at the possibility of non-thermal effects. The people he knows are very much believers in non-thermal effects. If there is a change that might possibly occur, he felt it would have to do with whatever is happening now in Russia which is impossible to talk about the way they are moving in business.

Dr. Polson agreed that there were a large number of Russians who believe in non-thermal effects. However, he still believed they have to go through a critical review process similar to what is done in all of the western countries.

Mr Vosko commented that, from his understanding of why they used the Russian standard, it cut in half the ANSI standards that the cellular people were going to be saying must be complied with. Therefore, the committee decided to take a more prudent view and use that standard as a starting point and the cellular people indicated their agreement. However, he did not feel this implies that if the Russian standard is met (or below it) there are no possible health hazards. What is being said, and what, he believed, Dr. Cleary is saying, is that the safe standard is unknown and there will be biological effects from non-thermal radiation. The experts themselves are saying the ANSI standards are good. If this standard is reduced by half and going to the Russian standard and the cellular people are still reasonably below that then this committee is going to be faced with a decision. Therefore, unless someone comes up with a better standard, this committee is going to use the Russian standard as a starting off point but it does not mean we are saying there are no potential bad effects nor that everything the cellular people want to do is OK. To be fair, however, the cellular people are meeting the standards they have to meet and he was not sure the committee could get them to comply with the Russian standard.

Dr. Polson noted that the report does provide a basis for looking at this situation in the future. He indicated that what is being done here by this committee could have ramifications that go far beyond this community.

> MOTION by Rowe, support by Vosko, that the Cellular Tower Study Committee hereby acknowledges receipt of the report on the five individual testing sites by the Monitoring Sub-Committee entitled *Measurements of Electromagnetic Energy Levels In Close Proximity To Cellular Telephone Towers*; and
>
> FURTHER, that additional random blind testing will be conducted by Dr. Valdis Liepa to increase the validity of the measurements in the report.

Dr. Rowe extended the committee's sincere appreciation for the efforts of all the people who participated in developing this excellent report.

Mr. Sundquist extended a special thanks to Dr. Valdis Liepa who donated not only his time and efforts but the equipment to make these tests as fair as possible because, without his expertise and equipment, these tests might not have been possible.

Mr. Sundquist also noted that very early on in this process Dr. Rowe, and several others, asked the companies to produce certain information which is all now reflected in this report. He felt the cellular companies have now met this request with this report and extended his thanks for everyone's efforts.

Motion carried unanimously.

PRESENTATION BY DR. PETER POLSON:

Mr. Brock mentioned the committee has previously received some background information on Dr. Polson, in addition to copies of some of his publications.

Dr. Peter Polson, AUSA Research & Consulting, Cupertino, California, gave a brief summary of his education and background. He has 22 years of experience in the area of biological effects of nonionizing electromagnetic radiation (NIEMR). He mentioned that he has appeared at a number of public hearings to discuss exactly what is being addressed here tonight.

Dr. Polson stated that the general conclusions he has reached, after doing some calculations and measurements of his own, is that the levels which were measured in the Monitoring Sub-Committee's report are, in fact, very typical of what does exist around all base stations. Also, his conclusions are supported by what the FCC has said in a directive to the cellular companies where they have exempted all cellular base stations from having to write reports addressing the health effects concern of Radiofrequency Radiation (RFR). This is a blanket exemption from FCC for all cellular stations in this regard.

Dr. Polson went on to explain that he would comment on a number of areas that the committee was probably very familiar with but he wanted to give his views on what he believed is the correct perspective on cellular RFR and the bioeffects or the possible lack of bioeffects therefrom. Overhead transparencies were used in his presentation.

He began his in-depth presentation with an explanation on the term "electromagnetic radiation." Generally, when the public hears the word "radiation" they immediately think the worse, i.e. radioactivity, Chernobyl, Three Mile island, atom bombs, when actually radiation is a quite benign physic and engineering term. Radiation means that energy is being transferred in space, and cited several examples to illustrate his point such as acoustic radiation being emitted from

a person's mouth when talking. Electromagnetic radiation is the phrase that is applied to power density and is the term in microwatts per squared centimeter that is shown in the measurement report. This power density determines the exposure of people to this particular agent. He explained how radio frequencies are measured with the help of a tabular form chart.

He reviewed charts that presented some of the history of the RFR microwave standards which have been set over the past forty years. He noted that although the ANSI/IEEE standard has come under some criticism as not being a particular good standard, he, nevertheless, believed it was a very good standard. He commented on some of the other standards that have been set worldwide and, except for the soviet standard, all of them were based on a threshold hazardous level of .4 watts per kilogram. He also mentioned that people frequently confuse the effects of the power line frequencies of 60 hertz with the effects that may occur at radiofrequencies which are approximately 850 million cycles per second, and noted that the new PCS systems will have frequencies of 1,850,000,000 hertz. He went on to indicate that for cellular the threshold for public exposure of 567 microwatts per squared centimeter or above is so high compared to what is actually around cellular base stations and that almost no one can be exposed to hazardous levels at cellular frequencies. Therefore, the public health risk is extremely small as associated with cellular base stations.

In his concluding remarks, Dr. Polson stated that the ground level power densities from cellular base stations to which people can be exposed are extremely small when compared to standards that are used in the United States or most standards that are used overseas, and the vast majority of them, as far as he could determine, will even meet the sole soviet union standard. However, the soviet union unfortunately has turned out to be one of the most polluted countries on the face of the earth. The soviet union has had standards for air quality, water quality, ionizing radiation, and radiofrequency radiation that since the 1960's, at least, have been a thousand times lower than comparable standards in the United States. How can they do this? They don't enforce their standards. For the RFR standard, the 1984 soviet standard, the soviet military was specifically exempt from having to meet the standard. The military followed the NATO standard which was 10,000 microwatts per squared centimeter. He felt it was not reasonable for anyone in the United States to consider adopting the soviet RFR exposure standard because it is just not scientifically defensible.

Lengthy discussion followed Dr. Polson's presentation.

Mr. Sundquist asked Dr. Polson to comment on Dr. Cleary's published studies which indicated that cellular towers should be eliminated or, at least, not be placed near schools. These were articles that were previously submitted to the committee and Dr. Polson.

Dr. Polson, who has known Dr. Cleary ever since he became involved in this research area, said that he talked with him shortly after receiving and reviewing the information submitted to him from the City. As he understands it, the specific absorption rates that Dr. Cleary quotes in his

papers, the power densities, range from 200 watts per kilogram down to 5 watts per kilogram and he does not see effects very often at the 5 watts per kilogram. In other words, he is saying that effects are realized at 10 watts per kilogram and up. The exposure value for the general public (ANSI/IEEE), is .08 watts per kilogram which corresponds to 567 microwatts per squared centimeter. The base station levels are 1 or 2 microwatts per squared centimeter, so there is another factor of 500. The difference in the values between the research Dr. Cleary has done and the levels around base stations is enormous -- a factor of 10,000. Dr. Cleary could not come up with a statement about the safety of base stations with 1 watt per squared centimeter because he does not know where the threshold exists for a non-hazardous effect. Dr. Cleary believes there is a threshold but he just does not know from the scientific literature where he would put that threshold. This, of course, contrasts with every other standard setting body in the world which have indicated that a threshold for hazardous effects exist at .4 watts per kilogram. Although he respects Dr. Cleary, Dr. Polson said he must disagree with him on where a threshold for hazardous effects exists.

In terms of Dr. Cleary's review of the scientific literature, Dr. Polson explained that he and his colleagues do what is known as "critical reviews." They try to determine if there are claims that may or may not be supported by the evidence presented in the paper. Dr. Cleary does not agree with this approach. He accepts the author's findings at face value if the paper has been published and has gone through peer review. Critical reviews are what any standard sitting body working with any toxic agent, chemical, etc. would conduct so that papers may be given appropriate weight.

Dr. Liboff stated that he agreed with much of what Dr. Polson said about the way the ANSI standard has developed but in the interest of fairness there were some things which, he thought, Dr. Polson neglected to say. For example, the duty cycle that is used at any of these frequencies might play a role in terms of how the standard is set but, as he understands it, the short pulses which may very well exceed the level of energy that is being discussed here applied for a shorter period of time are really not considered.

His other comments dealt with the Russian military and the evolution of the standards. He pointed out the standards set, in most countries including the United States, for the population do not necessarily apply to the military. Also, the reports that were considered by Dr. Polson in assessing the evolution of the standards included much in the way of non-thermal work. There are situations where the nature of the research that is supported by the groups that are most concerned with the outcome of the research neglects the non-thermal area, and this is one of the criticisms, he feels, that should be directed to the industry. He mentioned that most of the information that has been filtered into the groups that Dr. Polson was discussing, in his opinion, was really limited to thermal research. He felt no one knows what happens at the lower levels even though there are isolated reports which appear from time to time which do not agree with other researcher reports. This, in his opinion, is where most of the research should be directed.

Dialogue continued between Dr. Polson and Dr. Liboff relative to Dr. Liboff's comments.

Mr. Vosko asked on what basis was the ANSI standard reduced in 1992? Dr. Polson explained that it is historically true that in setting standards for other agents there are two levels for exposure. One at the occupational level and the other at the general public level, or "uncontrolled environment" level, which is lower. In the 1982 standards, it was set at one-tenth of levels believed to cause hazardous effects. So, essentially, it was set at a "no effect" level. In the 1992 standard, it was decided to have a two-tier standard so the original "no-effect" level was retained and the general public level was reduced by a factor of five to make it consistent with other agents in the environment. The United Kingdom did the same thing, however, in 1993 they decided that it made no sense to have a level that is one-fifth of a "no effects" level. So, they have a single tier level and have gone back up to what it was originally, or comparable to the 1982 ANSI standard.

Dialogue continued between Dr. Polson and Dr. Liboff regarding the lower level standard.

Mr. Bills reminded the committee that it was important to remember that the report indicates the energy levels are significantly below the ANSI/IEEE standard--on the order of 2 microwatts per squared centimeter.

The committee thanked Mr. Polson for his informative presentation.

Dr. Rowe, in the interest of moving the committee along, reminded the committee that there is a moratorium that is soon going to expire and, in that regard, Jan Goldfarb has compiled a list of possible regulations and siting requirements. What seems to be the consensus from the Technical Sub-Committee before, except for one dissenting opinion of Mr. Sundquist, is that we do not know what are the safe levels. Given that fact, we are suggesting that the committee be prudent in the sitings to protect the health of the citizens. So, if there have to be towers she would like to see them located where the risk will be at least reduced.

Some discussion focused on whether there were any studies on the lower power levels. Mr. Brock felt, for the purpose of this committee, it appears that they should focus on the lower levels.

Mr. Sundquist commented that he could not understand why there is a need, or feel there is a need, to regulate something if there really is no evidence showing that there is a problem.

Dr. Rowe, quoted from a published article, which showed damage to the internal body at 50, 30, and 10 microwatts per squared centimeter. She felt she was close enough in levels, at 2 vs 10, to be prudent with respect to sitings. She noted that *Micro News* was filled with these types of issues. Again, we are not saying, "don't put up towers" just "let's be prudent." Let's reduce

any possible risk and examine siting regulations that will allow us to do that and still allow cellular companies to run their businesses.

Mr. Brock commented that it is very conceivably that there will be some fundamental disagreement as to any recommendations that will be made to the City Council, and that is acceptable.

> MOTION by Rowe, support by Sundquist, that a sub-committee be created to review and study the proposed list compiled by Jan Goldfarb on possible regulations and siting requirements and report back to the Cellular Tower Study Committee on their recommendations at the committee's next meeting for discussion.

Discussion followed and the motion was withdrawn because it was generally agreed that any regulations and/or siting requirements should be deliberated by the entire committee since there undoubtedly will be some significant disagreement over whatever is reviewed and proposed. It was also suggested that a possible extension may be required to address the remaining issues before the committee.

> MOTION by Rowe, support by Vosko, that the discussions on the municipal ordinances/regulations and the discussion of possible regulations and siting requirements be placed as the first items for discussion on the committee's agenda at their next meeting.
>
> Motion carried unanimously.

It was suggested that anyone who had any suggestions and/or recommendations should bring them to the next meeting.

SELECTION OF NEXT MEETING DATE?

Discussion was held on the next meeting date. The committee agreed to meet on Wednesday, November 29th, at 7:30 p.m. in the lower level conference room.

CONTINUATION OF NEXTEL COMMUNICATIONS REQUEST:

> MOTION by Rowe, support by Vosko, that Cellular Tower Study reconsider the request of Nextel Communications at this time which was postponed at the beginning of this meeting.
>
> Motion carried unanimously.

Mr. Brock clarified for the committee that the closest residential district (on Howard Road) to the DPW tower is approximately 1500 feet. The closest public school, Hillside Elementary, is located 4500 feet from the DPW tower. This school is located at Eleven Mile and Halsted Roads. Both of these areas are clearly outside of boundary of the moratorium.

Mr. Vosko's motion was restated for the record.

> MOTION by Vosko, support by Sundquist, that the Cellular Tower Study Committee hereby acknowledges the presentation by Nextel Communications regarding its proposal to co-locate on the Farmington Hills DPW site off Halsted Road; and
>
> FURTHER, this committee acknowledges that the DPW site does not come under the context of the moratorium as defined; and
>
> FURTHER, this committee does not choose to take a position on the Nextel Communications proposal because it is out of the area which they are currently studying and hereby recommends Nextel Communications take its proposal directly to the City Council for their determination.
>
> Motion carried unanimously.

Note: Dr. Debra Rowe and Jan Goldfarb left the meeting at this time.

DISCUSSION OF OTHER MUNICIPAL ORDINANCES/REGULATIONS. (TABLED FROM AUGUST 31, 1995 MEETING):

This was postponed to the November 29th meeting.

DISCUSSION OF POSSIBLE REGULATIONS AND SITING REQUIREMENTS. (TABLED FROM AUGUST 31, 1995 MEETING):

This was postponed to the November 29th meeting.

UPDATE ON FEDERAL TELECOMMUNICATIONS BILL:

Mr. Brock stated that the conferees for the House and Senate met on November 7th for the first time on the Telecommunications Bill. They have indicated they hope to have this resolved within the month. The mayor has written a letter to all of the conferees indicating the City's position regarding this Bill. A copy of the letter was distributed to the group for their information.

OTHER BUSINESS:

Mr. Brock distributed an updated list of the committee members to the group. He advised that there were now two vacancies with the resignations of Wally Kurzeja (resident) and Dr. Lee Kallenbach (scientific community). If the committee was desirous of replacing these people then they should inform him so the names can be submitted to the mayor for consideration and appointment.

ADJOURNMENT:

The meeting was adjourned at 10:15 p.m.

Respectfully submitted,
Steve Brock, Assistant City Manager

mg/ct110895

APPROVED

MINUTES
CITY OF FARMINGTON HILLS
AD HOC CELLULAR TOWER STUDY COMMITTEE
WEDNESDAY, NOVEMBER 29, 1995

The meeting of the Ad Hoc Cellular Tower Study Committee was called to order by Assistant City Manager Brock at 7:38 p m.

PRESENT:

Residents:	Robert Bruckner, Jan Goldfarb, Sandra McKelly, Dr. Debra Rowe, Gladys Sanford, Shari Schwartz, Marcia VanCreveld and Alan Vosko.
Cellular Companies:	Amy Accettura, Kyle Dilley, Mike Lord and Richard Sundquist.
Farmington Public Schools:	Kathleen McAdaragh-Hain.
Scientific Community:	Dr. Abraham Liboff and Dr. Valdis Liepa.
City Representatives:	Deputy Fire Chief Baldwin, Assistant City Manager Brock, Director Countegan, Police Sgt. Rebh and City Attorney Donohue (arrived 8:47 p.m.).
Absent:	Ken Bills.

APPROVAL OF MINUTES:

MOTION by Bruckner, support by Liboff, that the meeting minutes of November 8, 1995 be approved as published.

Motion carried unanimously.

Mr. Brock distributed a memorandum from City Assessor Babb, dated November 22, 1995, regarding his opinion as to the market value impact of cellular towers. In his memorandum he indicated that any impact of cellular towers would be so minimal as to not effect market value in any measurable way. Mr. Brock also distributed information from the IEEE Committee on Man and Radiation and from Dr. Peter Polson.

Discussion followed regarding Mr. Babb's memorandum. Several committee members disagreed with Mr. Babb's opinion, pointing out that market values are impacted by the location of these towers. Dr. Liboff commented that the general rule used around the country with regard to valuation of homes close to power lines is that market values can be affected as much as 30%.

Mr. Brock also handed out Dr. Liepa's report (Farmington Hills Cellular Towers--Spot Measurements) on the blind testings that were made in accordance with the committee's request. The six locations tested were: DPW yard, Hills Tech Drive, WSU and Gateway parking lots, and Ten Mile and Orchard Lake Roads.

Dr. Liepa reviewed his report, explaining how the measurements were taken during the testing procedure and the results that were obtained. He pointed out that the maximum energy density measured from cellular towers was 2.10 microwatts per squared centimeter at the WSU parking lot and Gateway. This was the highest reading.

Discussion followed to clarify certain aspects in this report.

DISCUSSION OF POSSIBLE REGULATIONS AND SITING REQUIREMENTS:

Mr. Countegan, Director of Planning, reviewed the report prepared by his department that outlined the districts where cellular towers are allowed, the height limitations, and other pertinent information relative to zoning regulations, Planning Commission approval, etc.

Discussion was held on why only certain zoning districts allowed cellular towers. A map of the zoning districts was displayed which showed the various districts within the City to help clarify the reasons for restricting the towers to certain zoned areas.

Some discussion was held on cellular towers being regulated as public utilities within the City's ordinance. Mr. Vosko commented that this issue will be addressed in their suggested recommendations since it was felt that cellular towers should not be considered as public utilities.

The next topic of discussion was the list of partial recommendations regarding the regulations of cellular towers and antennae prepared by Jan Goldfarb and Alan Vosko.

Mr. Vosko suggested, for the purpose of this meeting, that the committee limit its discussion to about five minutes on each of the proposed recommendations, since there are 18, so the other agenda items can be addressed. He further suggested that an individual motion be made and voted on for each of the 18 proposed recommendations.

Mr. Sandquist expressed his objections to limiting discussion of the individual items since the cellular companies have an extensive investment here and the committee is talking about significant changes in the ordinance. He felt that some of the recommendations could involve considerable discussion and should be allowed.

Mr. Vosko pointed out that this proposal is only a recommendation to the City Council and Planning Commission for their review and study. Personally, he did not believe the proposed recommendations would threaten any of the existing towers.

Mr. Brock interjected that he did not think a limitation should be placed on the discussion of the recommendations and that a thorough discussion should be had with the full benefit of everyone's comments.

Mr. Sundquist stated that one-half of the recommendations are illegal on their face, three-quarters of them are illegal as they are applied, and 95% of them are not necessary.

Mr. Brock recommended proceeding with a discussion of each recommendation in numerical order.

The first recommendation concerned not locating cellular towers or antennae in residential zones or within 1,000 feet of a residential area or school with no variance being allowed to this requirement.

Mr. Brock inquired as to the rationale used to determine that 1,000 feet should be the distance from any resident or school since this distance would probably exclude almost every tower in the City. For example, at Mercy Center this tower is probably about 400 or 500 feet from the nearest residence.

Mr. Vosko explained the parameters that they used to determine the proposed distance. He emphasized that they did not want these towers located where they could impact permanent residents or schools. Also, it was felt that there were enough other sites around the City where these towers could be located.

Mr. Countegan interjected that the group may want to differentiate between a residential zoned area and a residential area since there was a difference between the two. He explained that a residential zoned area could include a golf course and a tower could be located within the confines of a golf course. He suggested using a different term for the residential area such as neighborhood, residential buildings, etc.

Mr. Lord asked, what value was used to determine that 1,000 feet was a safe level? He felt there should be a reference level for what is reasonable. Dr. Rowe replied that they were trying to accommodate the industry as well as being prudent. Mr. Lord pointed out on the zoning map the only area the industry could be located in as the proposed recommendations are currently written.

Mr. Sundquist asked how non-conforming uses would be addressed under this proposal since 5 out of their 6 towers would be non-conforming the way it is currently written. If these towers needed to be upgraded, then they would need to be removed under this proposal.

Mr. Vosko explained from the information they had it appeared none of the these towers were located in residential areas, RA or RC. The wording, therefore, may not reflect accurately what the group was trying to achieve.

Mr. Countegan interjected that the Mercy Center tower is located in a residential district but this site was just rezoned to that classification this past year.

Further discussion followed regarding the existing towers in relation to the proposed 1,000 feet distance as well as whether there were other districts in the City where future towers could be located. Reference was made to the zoning map during this discussion.

Mr. Lord again inquired what scientific basis was used to determine the 1,000 feet limitation. Dr. Rowe reiterated her earlier comment relative to the group trying to be prudent in their determination. Mr. Brock added that he did not think the group had a scientific basis on which they made their determination. It was pointed out if the City includes a 1,000 feet in its ordinance other entities could presume that this figure as a safe level even without any clarification regarding the distance and, therefore, some credence should be given to this figure.

Mr. Lord continue to press his point relative to the 1,000 feet.

Dr. Liboff felt the question is whether the 1,000 feet is doable, if this figure is used.

Mr. Sundquist saw the issue as how far away should towers be from residential property. He was not opposed to some type of separation but he believed 1,000 feet was unreasonable. Also, he could not see any scientific basis or any health reasons to make any decisions as to setbacks. In addition, he pointed out that whoever looks at this whether it is another city, a judge, etc. will also question what was used as the basis to determine the 1,000 feet distance.

Mr. Brock felt there was some credence to this theory and reiterated that it practically precludes every area within the City. Also, since the residents seem to agree there is no conclusive evidence either way to support the 1,000 feet it will be difficult to prove this is an appropriate distance. He noted that the soviet standard is 10 microwatts and our tests, taken 500 and 600 feet away from a tower, show levels that are less than 1/5 of that standard. The Council will examine all of this information.

Mr. Brock wanted the residents to understand, or whoever intended to support large distances like the 1,000 feet, that the recommendation may lose its creditability, especially when the Council, the Planning Commission, and City Attorney review this recommendation and realize

that there is no justification for the distance. Although there may be some problems, and the tests show extraordinary low levels which are below any standard in the world they will question if this is something that can legitimately be enacted into an ordinance and be defended in a court of law, or elsewhere.

Discussion was held on the distances the existing towers are located from residents and schools as well as where possible future towers might be located.

Further discussion ensued on whether 1,000 feet was a safe, reasonable distance or whether another measurement should be considered for the distance between the towers, residences, and schools. Mr. Vosko emphasized the need to propose some type of regulation that will address the safety issue, being prudent for the residents as well as trying to accommodate the industry, while taking into consideration the aesthetics and current and future property values of the community.

Mr. Brock reminded the committee that they did not have to make any recommendations to the City Council in terms of restrictions, limits, etc.

Mr. Lord commented that in looking at the technical ties in relation to what the committee is doing, he did not see how they could make any recommendations that are based on any levels. The only recommendations that could be made would need to be on other issues not related to safety levels.

Dr. Rowe commented that the technical ties are the state of the research to date which is as far as they can go in this regard. The statement of the Technical Subcommittee reflects this position which, except for the cellular company representative, agreed that based on the report from the research literature reviewed by them it seems there are biological effects from non-thermal microwave radiation which may or may not cause adverse health effects and, therefore, more research is needed. The National Cancer Institute also has just started a study on this and the results are not in as yet. In her opinion, they do need to make an educated guess based on the state of the research to date as to what would be a way to protect the community that will also meet the needs of the industry

Mr. Sundquist suggested clarifying the definition for a school since there are different types of schools within the City, i.e., bible college, Oakland Community college, catholic schools, vocational schools, Wayne State University, etc.

Dr. Rowe replied that their intent here is the exposure to the younger school age children.

Further discussion was held relative to the distance that should be allowed between the towers and residents and schools. Mr. Vosko commented that if the 1,000 feet is not acceptable then it should be reduced to at least something that is supportable. It was suggested using 500 feet